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The name of the Agricultural Marketing Service was changed, effective Feb. 8, to the Consumer and Marketing Service.

ORVILLE L. FREEMAN
Secretary of Agriculture

S. R. SMITH, Administrator
Consumer and Marketing Service

Volume 10, Number 5

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May 1965

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Cover Page

Space-age instruments help to analyze meat and meat products — supplementing the protection afforded by USDA meat inspectors working in meat packing and processing plants across the Nation. See p. 14.

Editor, JAMES A. HORTON

AGRICULTURAL MARKETING IS PUBLISHED MONTHLY BY THE CONSUMER AND MARKETING SERVICE, UNITED STATES DEPARTMENT OF AGRICULTURE, WASHINGTON, D. C. 20250. THE PRINTING OF THIS PUBLICATION HAS BEEN APPROVED BY THE BUREAU OF THE BUDGET, JULY 20, 1964. YEARLY SUBSCRIPTION RATE IS \$1.50 DOMESTIC; \$2.25 FOREIGN. SINGLE COPIES ARE 15 CENTS EACH. SUBSCRIPTION ORDERS SHOULD BE SENT TO THE SUPERINTENDENT OF DOCUMENTS, GOVERNMENT PRINTING OFFICE, WASHINGTON, D. C. 20402.



agricultural marketing

The Growing Food Stamp Program

**87 Pulaski County Families Buy
Food Stamps First Day (Ark.)**

**371 Families Get Stamps
In Claiborne (Tenn.)**

**Food Stamp Program Equal
To New Industry (La.)**

**200 Buy Food Coupons
In Denver Opening (Colo.)**

These are the kind of headlines popping up in counties, towns and cities all across the Nation this spring, as the Food Stamp Act of 1964 begins fulfilling its objectives of achieving "a fuller and more effective use of food abundances" and providing for "improved levels of nutrition among economically needy households."

Starting with a base of the 43 areas in which the Food Stamp Program has been tested during a period of more than three years, the Consumer and Marketing Service of the U.S. Department of Agriculture will this spring and summer expand the program under permanent legislation to some 90 localities in 40 States and the District of Columbia, in keeping with plans announced last October for the 1965 fiscal year. Continuous expansion in the coming few years will eventually bring this program of food assistance to low-income families in about half of the some 3,000 counties in the United States as well as to a number of major cities.

The shift from "pilot" to "permanent" programs in the 43 areas is being accomplished with no disruption, even though re-authorization of food retailers and wholesalers was necessary in order to bring them under provisions of the Act. But the legislation is so closely tailored to the methods and procedures developed in the three-year trials that participants and business interests find the change-over pleasantly uncomplicated.

The principal change, in fact, is a welcome one to recipients, who may now use Federal food coupons to buy coffee, tea, cocoa and bananas unless they are labeled as imported. In the pilot phases of the program, operated under the more restrictive authorizations of the so-called "surplus removal" Section 32 of the Act of August 24,



This couple in Nash County, N. C., like others across the Nation, is signing up.

1935, these products were specifically listed as ineligible for food coupon shoppers.

Under the 1964 Food Stamp Act, ineligible foods now are those identified at retail as imported. Any meat which is imported cannot be sold for the Federal coupons, and USDA has interpreted this to mean that the retailer is forbidden to sell any meat or meat products identifiable as imported at the time they arrive at his store, or any processing plant he may own. The prohibitions against selling alcoholic beverages, tobacco, food for pets or livestock, and all nonfood items for Federal coupons remain unchanged.

The expanding program continues to be virtually foolproof in its simplicity, employing the carefully developed methods that assure maximum benefits

to low-income recipients, to the food industry, to general business and banking interests, and to the community generally.

Under the food plan, families who are certified as eligible by State welfare agencies purchase food stamp coupons with the money they would normally spend for food, and receive an amount of coupons worth more than they paid. The difference represents increased food purchasing power supplied by the Federal Government, and is governed by family size and income. The coupons are spent like cash at retail outlets authorized by C&MS. Retailers redeem their coupons through their local banks or authorized wholesalers, and the canceled coupons move through normal banking equipment and channels to the Federal Reserve System.

The Seed of Truth

*Examples of several ways in which seed advertisements
would violate provisions of the Federal Seed Act. Ads meeting
these provisions are understandable and reliable.*

CONTAINS BRAND X MERION® BLUEGRASS!!

*A new seed for all your needs.
Deeper rooted than other grasses.*

See anything wrong with this type of advertisement? Well, the U.S. Department of Agriculture does. USDA's Consumer and Marketing Service can show you several ways in which this ad would violate the advertising provisions of the Federal Seed Act.

The Act is administered by the Seed Branch of the C&MS Grain Division.

What constitutes false advertising for seeds? The answer — any ad which contains a false statement, or is worded so that it *may* create a false impression on the consumer.

The advertising provisions of the Act are designed to protect both the seed buyer and the seed dealer. When a seed advertisement meets these provisions the consumer can rest assured that he can understand it and believe it.

The seed dealers benefit because the Act enforces fair competition. It protects the honest dealer from both the unscrupulous seed dealers trying to make a fast buck, and the honest dealer who simply got carried away with a sales campaign.

A test any seedsman can use to determine if his advertisements are proper is to ask himself, "Would I have reason to complain if my competitor used this sort of advertisement?" If his answer is "Yes," he'd better change his ads.

The most common violation of the Act's advertising provisions concerns

the improper use of kind and variety names. Ordinarily, variety names are determined by the originator of the seed. If, for some reason he doesn't want to give it a name, however, then whatever it is called at the time of its initial sale is its official name thereafter.

The acceptable names denoting all kinds of vegetable and agricultural seeds are listed in the regulations of the Federal Seed Act. These are the only names that may be used.

The trouble starts when these kind and variety names are used improperly. This is one of the violations in our example. "Merion" is a variety of kentucky bluegrass. To call it "merion bluegrass," as we did, is misleading. It must be "merion kentucky bluegrass."

As long as words or phrases describing the seed are associated with the kind and variety names, it must be clearly apparent that they are not a part of these names. A brand name therefore, must be clearly distinguishable.

Also in our illustration, we put a circumscribed "R" under the word "merion" to show another violation that occurs in some ads. This symbol indicates that the name has been registered with the U.S. Patent Office. Actually, variety names cannot be registered — they are in the public domain and no one can reserve them for his own private use.

The Act also condemns the use of false or exaggerated statements such as "Deeper rooted than other grasses." A consumer could get the impression from this statement that the seed will produce roots not only deeper than any other variety of kentucky bluegrass, but deeper than any other kind of grass. Seed Act officials could refute this claim quite easily by simply checking the

tables on root sizes. In many other cases, however, detection is not so simple. Sometimes the seed is actually grown to determine first-hand whether or not the ad is correct — and sometimes the claims are far from the truth.

The fifth violation in our illustration is in advertising old — and in other cases, even obsolete — varieties of seed as "new" to attract customers.

"Flagging," the other violation committed in our example, describes the practice of emphasizing one of the components of a seed mixture in bold headlines in the ad — **CONTAINS BRAND X MERION BLUEGRASS**. In many cases the mixture may contain only a small amount of this seed. The buyer could be misled into thinking that the flagged seed is the only kind in the package since it is the only kind mentioned in the headlines. The ads should, therefore, either state the percentage of the seed being flagged, or spell out the percentages of all the components of the mixture.

These are the violations committed in our example. Of course, ads sometimes contain other violations—equally important, equally misleading — that were not shown here.

The incorrect use of the word "hybrid" in advertisements is one of these. The word, "hybrid" alone is a potent seed-pusher that automatically brings to mind visions of wonder seeds that are better than any others. For this reason, its use is carefully guarded. According to the Seed Act, "hybrid" cannot be used to describe a seed unless it is a *first generation* seed of a specifically defined cross of other seeds.

Another violation we did not illustrate is the practice of isolating a major attribute of each of the varieties of

seed in a mixture and then lumping these characteristics together in an ad referring to the entire mixture.

For example, assume we have three varieties of alfalfa seed in a package. The principal characteristic of one of these varieties is that it is highly resistant to insects. Another variety is wilt resistant, and the third produces a higher tonnage. To say that this *mixture* is "insect and wilt resistant while it produces a higher tonnage," would be incorrect and misleading. Not all of the plants will have these attributes — one plant will be insect resistant, one wilt resistant, and one more prolific.

Since photographs can mislead the consumer just as easily as printed material, their use in ads or labels is also regulated by the Federal Seed Act. Most of these photo violations are found in seed catalogues where a company may use one stock picture of some kind of seed to illustrate several different varieties of that seed. Since the varieties may differ in appearance a great deal, it would be confusing to see the same photo for each variety. In these instances the picture defeats its whole purpose — it is *not* worth a

thousand words. Where it is supposed to illustrate the seed — it does not. Where it is supposed to inform the consumer it confuses him.

Court rulings point out some of the principles that are used by the Seed Branch in evaluating advertisements. Some of the major ones:

1. Advertisements must be considered in their entirety and as they would be read by those to whom they appeal.

2. Advertisements are not intended to be carefully dissected with a dictionary at hand, but rather to produce an impression upon the ordinary purchaser.

3. Advertisements, as a whole, may be completely misleading although every sentence separately considered is literally true. This may be because things are omitted that should be said, or because the advertisements are so composed or purposefully printed in such a way as to mislead.

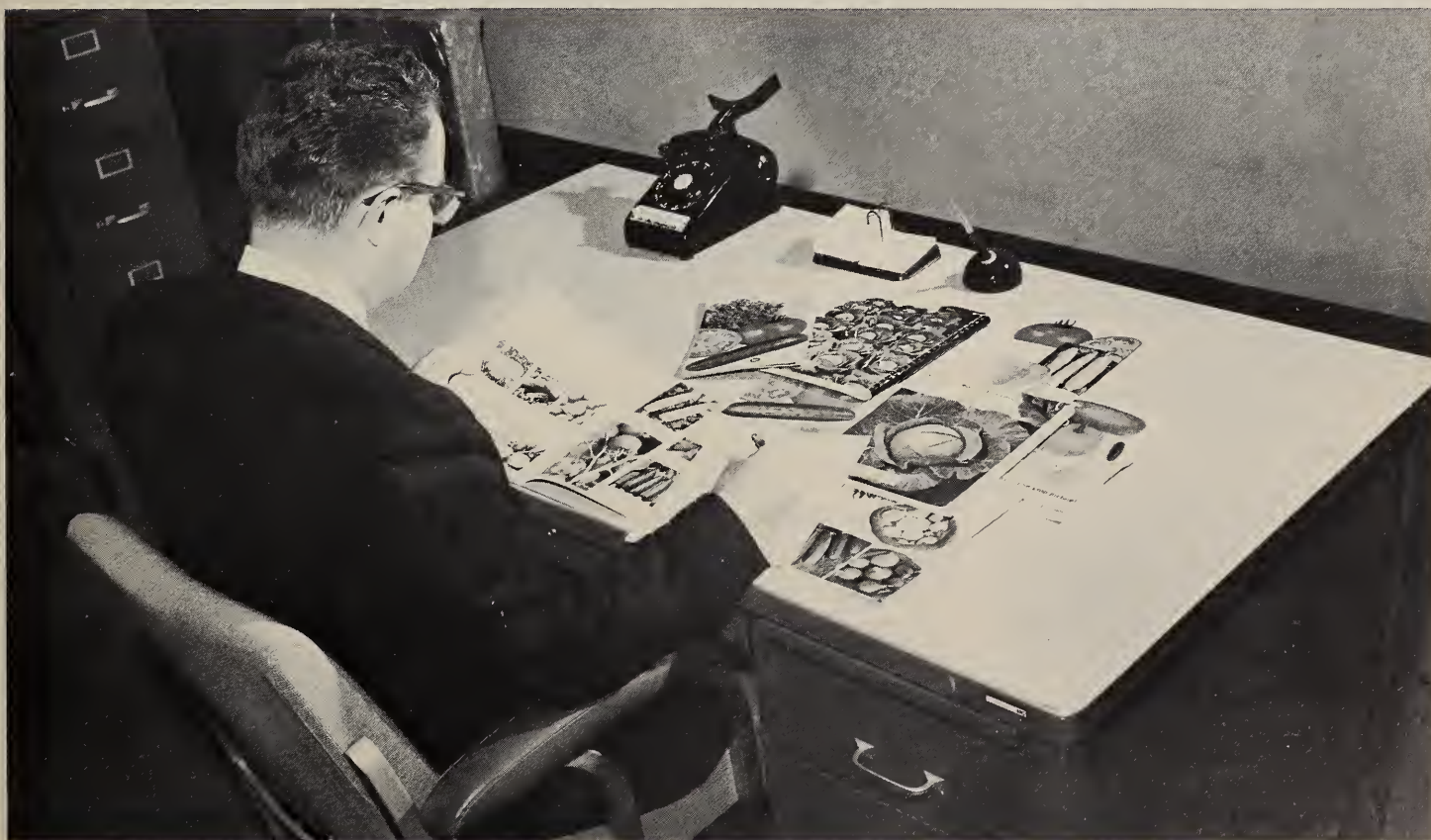
4. The fact that a false statement may be obviously false to those who are trained or experienced does not change its character, and does not take away its power to deceive others less

experienced. There is no duty resting upon a citizen to suspect the honesty of those with whom he transacts business.

5. Laws are made to protect the trusting as well as the suspicious. When an apparent violation is detected, a warning letter is sent to the violator to point out his wrongdoing. If he does not correct the ads, he can be prosecuted in a Federal court.

Penalties against the violators may range from minimum fines of \$25 to \$500 in civil actions, to maximum fines of \$1,000 to \$2,000 in criminal actions. The Seed Branch has found, however, that in most of the cases the violations are usually the result of an inadvertent error or an overzealous sales campaign rather than a conscious attempt to dupe the public. Most of the cases are settled, therefore, by merely writing a letter to the dealer — this is usually all the prompting he needs to change his ads.

In this way the Federal Seed Act helps to protect our competitive system — by enabling the consumer to buy his seed with assurance, and by preserving fair competition among seed dealers.



Federal seed official LaVerne Herink studies seed advertisements to make sure they are accurate and are not misleading.

The Syracuse Dairy Lab After One Year

THE DAIRY industry in the Northeast has been saving dollars, days and storage time this past year, thanks to the new dairy inspection and grading laboratory established in Syracuse, N.Y., by the Consumer and Marketing Service of the U.S. Department of Agriculture.

Before the Syracuse lab opened, late in 1963, dairy plants and exporters had to send samples to the C&MS Dairy Division's lab in Chicago. It was not only farther away, but frequently over-burdened.

Now, the Northeast gets fast, complete inspection and grading service, and various types of chemical and microbiological analysis on butter, cheese, dry milk, sweetened condensed and evaporated milk, and other dairy and egg products.

In its first year, the lab tested 7,509 nonfat dry milk composites for 29 plants in New York, Vermont, Pennsylvania, and Maryland. During this period it issued 2,830 dry milk grading certificates. This has relieved the Chicago testing facility of some of its former workload and permitted it to provide faster and more efficient services for Midwest dairy plants.

Dairy plants served by the Syracuse lab include small, medium and large operations. A spot check shows that the lab serves the particular needs of all.

As an example, the new testing facility has played an important part in the operation of one of New England's largest dairy manufacturers, H. P. Hood & Sons. Hood operates two plants in Vermont, each with a capacity of about 750,000 pounds of milk a day.

Mr. S. L. Lauderbach, sales manager in charge of industrial sales, in talking about the lab remarked: "Formerly, it took about 8 days to get grading reports back. It now takes about 5 days. The saving of 3 days for 5 million pounds of dry milk powder in the form of investment comes to about \$2,000 a year. In addition, we get a savings in storage costs and postage fees."

Hood uses USDA services in grading butter going to bulk users and in grading milk for government purchases and for overseas sales, as well as a part of the product that goes directly to the food trades. Mr. Lauderbach said the service . . . "helps in the marketing of

the products, especially when an objective agency is needed to give an opinion of them. All dry milk from U.S. production going to children over the entire world — millions of pounds every year — must be graded and everyone recognizes the value of the service."

He further stated: "The USDA standards are constantly being upgraded and the use of USDA grades and standards has been a factor in raising the standards of dairy products throughout the industry, regardless of whether a company uses them. Firms not using the service have to upgrade their products to meet the competition of the products that are graded."

Owen Pilgram, manager of the Del-town Foods, Inc. dairy plant in Fraser, N.Y., felt that the new lab played an important part in moving his products. "Before the Syracuse lab opened, we ran the risk of producing beyond our own warehouse capacity," Mr. Pilgram said.

"This was brought about by the fact that we had to store some of our products 8 to 9 days, while waiting for the results from Chicago. Now we can get certification in half that time from Syracuse. This, in effect, enables us to store about twice as much milk powder, since it'll be there for a shorter period." The plant had 244 nonfat dry milk composites tested by the Syracuse lab in its first year.

The new lab has also lent assistance to Keller's Creamery in Harleyville, Pa. It prints and occasionally churns butter. The plant can package as much as 175,000 pounds a day. The Syracuse lab is used occasionally for fat moisture and salt tests. Most of the butter printed by Keller is received in bulk form from Minnesota. In commenting on the new facility, supervisor Arnold Nyce said: "It sometimes becomes necessary for us to call upon the Syracuse people to verify results. In this capacity, they've been quite helpful and very cooperative."

The largest user of the USDA lab during its first year was the Mutual Milk Sales Cooperative Inc., in Oneida, N.Y. It had 1,049 composites of nonfat dry milk tested in the first 12 months. Manager Robert Rich remarked: "The lab has greatly assisted our work here.

Before it opened we took our samples to the Syracuse airport three times a week for air express shipment to Chicago. Now we make the same 30-mile trip to Syracuse, but directly to the lab. Generally, we're able to get results back in the minimum time of 3 days. Our capacity is one million pounds of milk a day. At that rate our warehouse would be completely filled after 8 days of production, if none of our products moved."

Another upstate New York dairy manufacturer is the Ogdensburg Creamery in Ogdensburg. Larry Bagdan, an officer of the company, had nothing but praise for the lab. He characterized the facility's personnel and operation as: "excellent, capable, efficient, willing, experienced, helpful and a pleasure to work with. The lab is truly a credit to USDA. They gave us their invaluable professional advice in helping us get back on our feet after we were hit by damaging fire. Had the lab not been nearby, it's doubtful we could have made such a fast recovery. Naturally, the lab has also given us a big assist in the amount of time we save in getting results back. Due to intervening weekends we had to wait as much as two weeks for results from Chicago. Now we generally get them in 3 to 4 days."

The Borden Company sends the lab samples of nonfat dry milk and cheese that it exports and sells to the Commodity Credit Corporation. Fred W. Ackermann of Borden's Milk Base Products Division felt that the facility saved them as much as 5 days. "We find this savings in time quite important since our exports have to meet tight shipping deadlines. Now that the lab is so close we won't hesitate to make a trip up there to deliver the samples personally."

The fact that the Syracuse lab has left its impact on the Northeast dairy manufacturing industry is unmistakable. Plant managers in this area have also become increasingly aware that the lab — whose services are paid for by its users — provides a dependable means for checking the testing accuracy of their own laboratories. At the same time, the lab personnel are being consulted on plant problems dealing with product quality improvement and composition control.

What Makes A Fruit & Vegetable Inspector?



An experienced instructor shows students why this cabbage meets the U. S. No. 1 grade requirement for its type.

JUDGING QUALITY in the immense variety of fruits and vegetables destined to reach the Nation's food shoppers — and recognizing defects and other undesirable conditions — take skills not easily acquired.

The inspector's job is a demanding one — calling for highly developed senses of taste, touch, perception, and smell; for a good background in the botanical sciences; and for a willingness to work at unorthodox hours, in out-of-the-way places, under hazardous conditions, and in fair or foul weather.

Fresh fruit and vegetable inspection and grading is a nationwide voluntary service of the U.S. Department of Agriculture's Consumer and Marketing Service. It is provided, for a fee, on request of industry members. In recent years, terminal market inspectors have examined between 90,000 and 100,000 carlots of fresh fruits and vegetables annually — while the total of all inspections, including those at shipping points, has averaged about 1½ million carlots annually.

The fresh fruit and vegetable inspector at a *shipping point* is trained thoroughly in the inspection of a limited number of commodities produced in the area. An inspector assigned to a *terminal market*, however, must be well trained to inspect a much broader range of commodities. He may be called on to inspect anything from avocados to zucchini or apples to potatoes. The men selected for terminal market inspection are among the "cream of the crop," already having demonstrated more than average ability in shipping-point inspection or similar experience.

Because terminal market inspectors are expected to be experts on the U.S. grade standards and inspection procedures for a large number of fresh fruits and vegetables, the Fruit and Vegetable Division of C&MS conducts a "graduate" training course for them at regular intervals.

Recently, one of these training classes was held in New York City for 19 selected men from the C&MS terminal market inspection team. Before becoming terminal market inspectors, many had worked as Federal-State inspectors at shipping points. Some had been employed as inspectors by supermarkets, railroads, and others in the food industry.

In the four weeks of intensified 8-hour-a-day classroom training, the "graduate" students get thorough drilling in interpreting the U.S. grade standards for those fresh fruits and vegetables on which their previous experience may have been limited. They also "brush up" their knowledge of inspection policies and procedures. Plant pathologists review with them the means of recognizing plant diseases, conditions, and injuries.

"Don't taste-test a cold apple," they hear. "To get the most accurate results, an apple must be warmed a little. Stick it into the pocket of your coat for a half-hour or so — then cut it and taste."

The inspector's personal test of quality and condition may be as accurate as the scientific instruments often used, but instruments play a significant role in fruit and vegetable inspection and the C&MS inspectors must know how

to use them properly.

Inspectors learn to measure size with calipers, sizing rings and spring scales. The size of a peach, for instance, is measured by its smallest diameter. And it is this minimum size that is designated when the peach is packed. A refractometer indicates sugar content of a fruit; a thermometer, pulp temperatures. The inspectors must know that spinach freezes at 30° Fahrenheit, grapes at 26° to 28°, iceberg lettuce at 31°. In high-colored fruit, color is important and must be reckoned with.

What makes a fruit rate as U.S. Extra Fancy, U.S. Fancy, or U.S. No. 1 quality? What makes a cull? What is "russetting," and how much or what kind may be permitted in grading apples? What are the symptoms of "bitter-pit", a disease that spreads rapidly? To what extent is hail injury permissible?

Cleanliness, color, shape and permanent damage of one kind or another must all be evaluated and considered in rating quality. Maturity, ground color, bruising, decay and other factors must be noted in judging condition.

The training program turns out high-caliber inspectors. Providing a basis for measuring the quality of fresh fruits, vegetables, nuts and related commodities, the program benefits both the fruit and vegetable industry and the consumer.

Speaking of the concluding sessions in New York, a trainee said: "It is highly intensive, so intensive that the four-week course might otherwise require a year. It's a good program — you can't just get it out of a book."

Mothproofing Washable Woolens

USDA researchers discover that some additives used by homemakers to sanitize or soften their wash will also mothproof washable woolens. Their best results were obtained with automatic washers.

SHIRTS, SOCKS, underwear, and other washable woolens may soon be coming out of the washer not only cleaner, brighter, softer and more wrinkle-free, but also mothproofed. Mothproofing is an asset not heretofore publicized for quaternary ammonium (QA) compounds and other additives used by many homemakers to sanitize or soften their wash.

Marketing researchers in the U.S. Department of Agriculture found that many recently developed QA compounds gave washable woolens various degrees of protection against clothes moths and black carpet beetles. These QA compounds are used commercially as deodorants, emulsifiers, germicides, and wetting agents. Some are also used to disinfect and sanitize baby diapers, clothing, linens, and other fabrics. QA compounds of another kind, used as fabric softeners, were not used in these tests, but are also believed to have some mothproofing value.

In the most successful tests made by USDA's Agricultural Research Service, clothes moth larvae consumed about 15 times more of the untreated wool fabric than of the wool treated with a QA compound. Larvae were used instead of adult moths in the ARS

tests because the young, not the adults, feed on wool and do the damage.

QA compounds were less effective when applied in a nonautomatic washer than in an automatic washer. The most successful QA compound used in an automatic washer produced much less protection when used in a nonautomatic washer. The reason isn't known, but scientists suspect different rinsing operations may be at least partly responsible.

Treatments with QA compounds are inexpensive as well as convenient. Only a small quantity — about $\frac{3}{4}$ ounce in each 2 gallons of water — is needed. This amounts to a concentration of only 0.3 percent, too slight to have any irritating effect on the skin of the average person. Homemakers use with safety much larger quantities of some QA compounds in their wash water for fabric softening purposes. More information on the effects of QA compounds on the skin is being obtained.

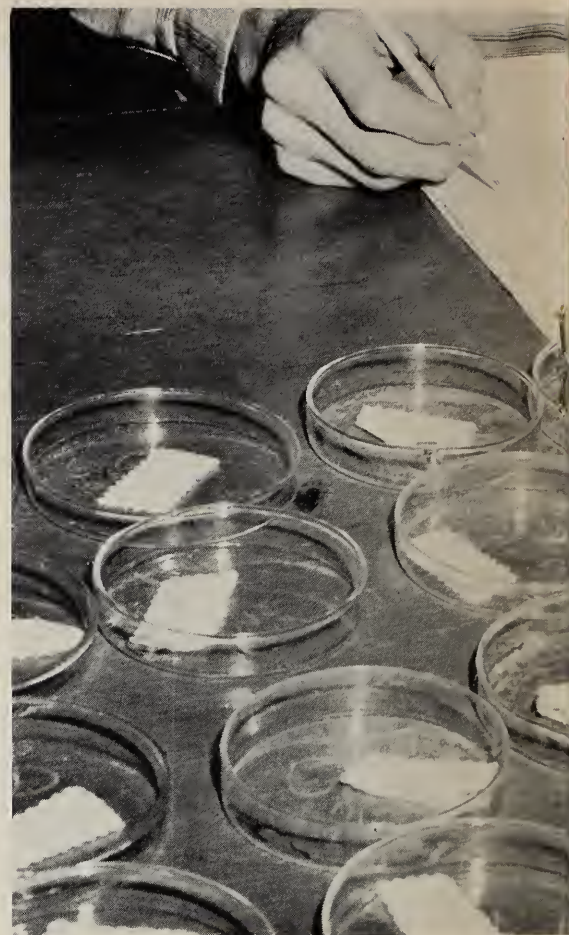
Some mothproofing protection remained through as many as three repeated washings — without adding any QA compounds after the first washing. Most of the compounds applied in the first washing were rinsed out of the woolens in additional washings. Only two of the compounds

satisfactorily protected woolens beyond the first washing. And only one of these excelled in additional tests.

In the preliminary tests, samples were handwashed in the various QA compounds and dried 4 days before exposure to the insects. The most promising of the compounds was then used in washing machine tests.

In initial tests, wool treated with one outstanding compound had less than one-tenth as much clothes moth damage as similar untreated wool samples. Fabrics treated with the remaining compounds also had much less damage than untreated wool, but only four of these treatments provided protection meeting the test standards.

The finest quality all-wool cloth was exposed to clothes moth larvae after treatment, in these tests. Similar cloth was exposed to black carpet beetle larvae, which also eat wool. Both kinds of insects fed on the samples for a 2-week period. They fed on the wool under ideal conditions for the insects — dark, humid, and warm (80° F.) — such as are common in closets and bureau drawers in spring and summer. Under such conditions, the treated woolens received a tough test — far tougher than most woolens are exposed





In the most successful tests, clothes moths consumed about 15 times more of the untreated wool fabric than of the treated. At left, ARS technician Lehman L. McDonald samples swatches of woolen cloth for insect damage. Note the damage to the samples at right and lack of damage to the samples at left. Many compounds were tested at the Savannah Lab.

The most promising compound tested offers complete protection from insects, as shown in the wool samples at top. Another compound offers some mothproofing protection, as indicated by the slightly damaged samples of cloth in the center. The two bottom samples were left untreated, and were heavily damaged.

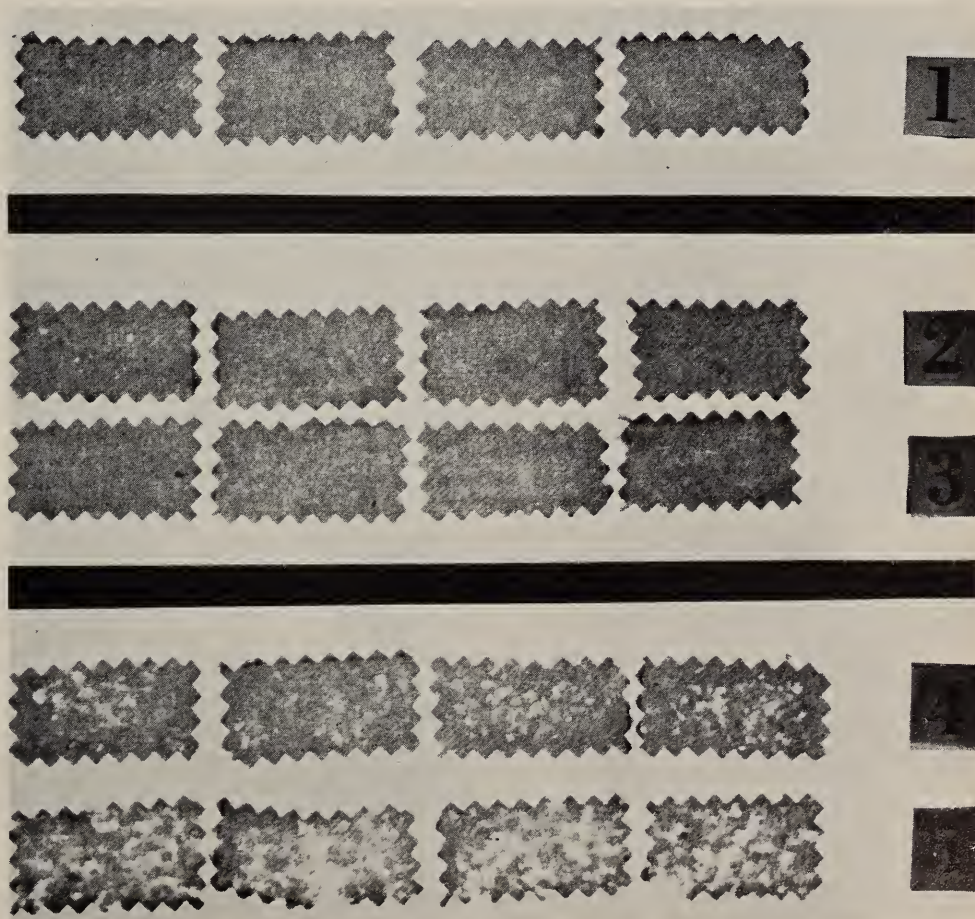
to in the average home.

The QA compound selected for additional testing gave good protection against carpet beetle larvae at even smaller concentrations in the water than were used in tests with clothes moth larvae. These successful results with the carpet beetle larvae were unexpected because most mothproofing treatments protect woolens against clothes moths more effectively than against carpet beetles.

Researchers followed the same procedures used by homemakers in washing the woolen fabric used in the tests. All-wool cloth commonly used in Army uniforms was washed with warm water. The cloth was loaded in the washer fairly loosely, at a ratio of 2 pounds of cloth for every 5 gallons of water.

Results of preliminary dry cleaning tests were encouraging, too. A single QA treatment had more lasting effect throughout additional cleanings than through additional washings.

Tests conducted by Roy E. Bry, Lehman L. McDonald, and Joe H. Lang are being continued at the ARS Stored-Product Insects Research and Development Laboratory, Savannah, Ga. Details will be published when tests have been completed.



Packing Peaches at Lower Cost

Peaches packed in boxes receive only one-third to one-half as many bruises and serious injuries as peaches packed in baskets with crown covers.

By Philip W. Hale and Earl D. Mallison

MANY PEACH growers and packers are saving money—and giving consumers a better product — by shipping in boxes instead of conventional baskets. Savings range from \$125 to \$250 for every thousand containers shipped, according to figures obtained in a 2-year study by the Agricultural Research Service of the U.S. Department of Agriculture.

There's less waste and quality deterioration among fruit in boxes than in crown-covered baskets, the ARS study shows. Scientists found that peaches in boxes had only one-third to one-half as many bruises and serious injuries as peaches in baskets with crown covers. Peaches in baskets with flat covers, which aren't used as often as the others, had nearly as low an injury rate as those in boxes.

The ARS study shows that maximum packing, rather than slack packing, results in greater injuries.

Peaches arrived at terminal markets with less bruising when packed to permit the fruit to settle 1 to 1½ inches below the lid as compared to peaches in boxes packed to maximum, weighing about 4½ pounds more than the slack-packed boxes.

Although some buyers may prefer baskets that are attractively packed with "faced" fruit (showiest fruit in top layer), costs are appreciably higher for such containers. Researchers calculated that peaches can be packed in boxes, in 38-pound lots, at container and labor costs from 39 to 52 cents per box. Costs of packing the same amount in baskets range from 62 to 64 cents.

These costs are based on the price of boxes, liners, other packing materials and labor costs in effect at the time of the study. Costs for culling, grading, sizing, and other operations that are not affected by the kind of container used were not included, nor were

grower discounts or bonuses.

Researchers compared five kinds of boxes with the baskets. These boxes include part-telescoping fiberboard veneer, wax-coated, wing-lock, and H-divider containers, and a full-telescoping fiberboard box.

One of the best boxes is the fiberboard veneer box, which could be used at a savings of \$125 per thousand containers, as compared to the cost of using crown-covered baskets. Although not the cheapest container, it permits fruit to be hydrocooled in the box, a practice followed at many packing-houses. If the other boxes were used, peaches would have to be hydrocooled

before they were packed.

One of the best advantages all five boxes have over baskets is their suitability for handling on pallets by fork-lift trucks. Palletizing permits faster handling at lower cost.

Veneer fiberboard boxes are most suitable for palletizing because they are able to support the weight of 2 five-layer pallet loads stacked one over the other. Although the other boxes can not be safely stacked as high as the veneer fiberboard box, they offer many of the same advantages.

Advantages of the boxes are greatest when the fruit is held in refrigerated warehouses, where space is expensive and must be used to the fullest to justify the cost.

Cheapest of the boxes studied are the H-divider and the wax-coated containers, at about 39 cents each; the full-telescoping box costs about 43 cents, and the wing-lock box costs almost the same as the veneer fiberboard box — about 51 cents. These costs reflect prices in effect at the time of the study.

Packing labor costs, per box, are about half that of labor costs per basket.

Cost differences are not the only consideration in selecting a container. Hydrocooling and other handling practices partly determine which container is most suitable. In most cases, growers and packers should be able to find a suitable container among commercially available boxes.

Additional details on the comparison tests among the various containers will be given in a report that will be published later this year.

(The authors are members of the Transportation and Facilities Research Div., ARS. Mr. Hale is stationed at Orlando, Fla.; Mr. Mallison, at Hyattsville, Md.)



One of the best boxes tested was this fiberboard veneer box with the corrugated cover, which could be used at a savings of \$125 per thousand containers.

Better Refrigeration For Food In Transit

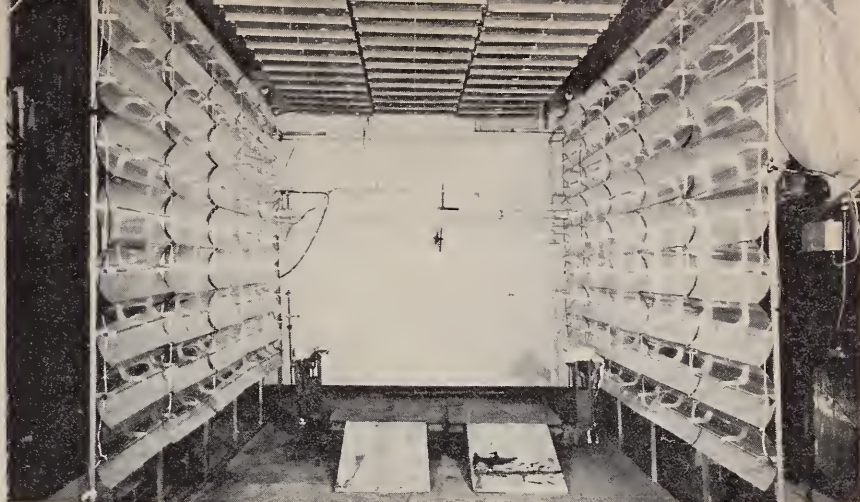


Fig. 1. The three banks of heaters for simulating solar radiation are shown in the test room.

Trucks are tested in this enclosure containing bands of heaters like those in a toaster, simulating conditions commercial trucks are exposed to in 100° hot weather.

By Robert F. Guilfooy, Jr.

RECENT TESTS by U.S. Department of Agriculture market researchers may lead to lower costs for shipping food in refrigerated trailers and trucks. Because of its perishable nature, food is one of the most expensive of major industry products to transport.

Tests made by USDA's Agricultural Research Service in cooperation with the National Bureau of Standards show that large, costly refrigeration units are needed in many trailers because so much of the cooling capacity is used not only to refrigerate the load, but also to offset heat entering the trailer. In hot weather an excessive amount of the cooling capacity is "consumed," in effect, by leakage of outside air into trailers. A few years ago, as much as 40 percent of the cooling capacity was used to counter heat leakage when trailers traveled at 50 miles per hour during days as hot as 100° F.

Recent tests show that heat transmission caused by air leakage in modern trailers has been nearly eliminated by efficient design and installation of more modern insulation, such as foamed-in-place material. With such improvements, trailers can be equipped with smaller, less expensive refrigeration systems. Better design and insulation also help prevent undesirable changes in humidity, which can reduce the quality and value of many perishable foods. And not least, from a transport efficiency standpoint, is the increased payload gained by reduced trailer weight and increased cargo space (about 10 percent).

ARS engineers, in cooperation with

the National Bureau of Standards, also found that liquid nitrogen reduced entry of hot, outside air when the nitrogen was discharged into an experimental, 8 x 8 x 12 foot container simulating a small, frozen food delivery truck. Liquid nitrogen, when released, instantly vaporizes and spreads throughout the refrigerated space.

Tests with the simulated truck show that total refrigeration requirements are much lower with liquid nitrogen than with a conventional system. Release of nitrogen into the cargo space creates a slight pressure that tends to reduce leakage of outside air into the vehicle.

With temperatures of 100° outside, and 0° F. inside the simulated truck, total refrigeration requirements were only 1,950 B.t.u., per hour, with liquid nitrogen, but 3,050 B.t.u., per hour, with conventional refrigeration.

Additional tests are being made to improve air circulation inside refrigerated trailers. Even when cooling systems are adequate, they may fail to maintain satisfactory temperatures throughout the load unless there is proper air circulation.

Under the same temperature conditions as described for the simulated delivery truck, engineers observed in air circulation tests in trailers that frozen food packages loaded on the floor with square $\frac{3}{4}$ inch grooves had temperatures as high as 30° F., in some instances, which is undesirable for frozen food.

Recommended temperatures of zero or below were recorded in food packages loaded on floor racks $2\frac{3}{4}$ inches

high with 1 inch of air space at the sides of the load.

Another problem in maintaining adequate air circulation sometimes encountered is the accumulation of frost on the cooling coils. Engineers found that air circulation dropped as much as 50 percent when excessive frost collected on the coils.

In other tests, engineers have determined how large a loss of refrigerated air results when a truck door is left open even for a short time. In one test, about 80 percent of the air changed when the door was left open only one minute. It took 25 minutes to restore steady-state conditions, that is, the same temperature conditions as before the door was opened.

The same temperature and test conditions were used in these tests as were applied in the simulated delivery truck described earlier. Additional cooling capacity needed to restore steady-state conditions was 1,240 B.t.u.

The time and refrigeration needed to restore steady-state conditions were about doubled when doors were left open 2 minutes. The air changed $1\frac{1}{2}$ times in this period, and steady-state conditions were not restored for 40 minutes, using an additional cooling capacity of 2,700 B.t.u.

Details of the ARS-National Bureau of Standards refrigeration tests will be published when tests are completed.

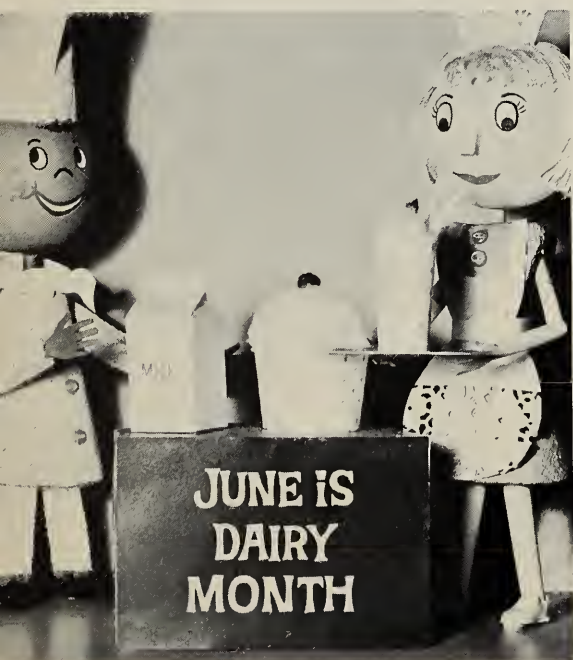
(The author is a member of the Transportation and Facilities Research Div., ARS, stationed at Hyattsville, Md.)

JUNE IS DAIRY MONTH

The greatest promotional program of milk and dairy products in the dairy industry's history will be launched during this year's celebration of "June is Dairy Month."



Wilma Lea Blevins, 23, of Harrison, Ark., is the American Dairy Princess for 1964-65. She will travel more than 100,000 miles, visiting some 40 States, to "speak up" for milk as the personal representative of the dairy farmers of the American Dairy Association.



"VITALITY" is the bright star in the crown of this year's celebration of June is Dairy Month, when the important dairy industry undertakes the most comprehensive promotional program of milk and dairy products in its history. By the way, this year rings up the 29th anniversary of that celebration. This year's promotion will have as its particular target the vital teen-age and young adult market. It will also seek to point out the value of milk to weight-watchers and dieters.

This year's celebration will be highlighted by a special tribute to dairying from Secretary of Agriculture Orville L. Freeman, in recognition of the dairy industry's great and ever-expanding contribution to the Nation's health.

Spearheading the 1965 promotion is the American Dairy Association, which will serve as master of ceremonies in the early summer campaign to promote the use of milk and dairy products. It will be assisted by a large number of other dairy organizations.

The Consumer and Marketing Service of the U.S. Department of Agriculture will cooperate with this health-building industry again this year, in its period of heaviest production, by featuring milk and dairy products on its list of plentiful foods for June. USDA will again distribute thousands of colorful fact sheets, or flyers, to the food distributive trades and food service industry. C&MS also has produced a special public service TV spot announcement for use over the Nation, calling attention to the nutritional values of dairy products not only for the young, but for citizens of all ages.

The 1965 June is Dairy Month campaign will also be supported by State and local programs organized by dairy

farmer groups in local markets, the State units of the American Dairy Association, State departments of agriculture, and a multitude of individual distributors and processors.

As in years past, a beautiful young lady has been chosen to carry the banner for the 1965 June is Dairy Month celebration. She is Miss Wilma Lea Blevins of Harrison, Arkansas, a brown-haired, blue-eyed lady of 23, who will serve as this year's Princess. She will travel about the country, bringing messages of good will and citing the contribution to good health of a round-the-clock use of milk and dairy products by the Nation's consumers.

Special dairy days will also be held across the country, parades and festivals arranged, and proclamations issued by many mayors and governors of the various States. Newspapers and magazines, radio and television outlets will be utilized to remind homemakers of the nutritional, as well as economical, values of milk and its manifold products, with suggestions of appetizing ways of serving dairy foods not only through the month of June but throughout the entire year.

Headquarters of the sponsor committee is the American Dairy Association in Chicago. Others sponsoring June is Dairy Month include: American Butter Institute, American Dry Milk Institute, Dairy Association Executives, Dairy Industries' Supply Association, Evaporated Milk Association, International Association of Ice Cream Manufacturers, Milk Industry Foundation, National Cheese Institute, National Creameries Association, National Dairy Council, National Milk Producers' Federation, and the Purebred Dairy Cattle Association.

Quality Beef for Needy Families

THE PRODUCT "shall possess a high degree of quality . . ." So reads the detailed specifications for packing canned beef in natural juices which the U.S. Department of Agriculture buys for donation to needy families.

The widespread popularity of the canned beef product among recipient families is convincing evidence that the specifications are carried out to the letter. Reports from welfare workers say "people love the canned beef." A typical note of appreciation reads, "there is so much flavor and the beef is really tender." USDA's Consumer and Marketing Service officials report they have received nothing but praise for the product.

Back of this successful donated food item is a story of developing ideas, testing and sampling a new product, grading for quality, and careful and continuous inspection. Each of the several food products which USDA donates has a similar background. All are carefully chosen to meet rigid standards.

The story of canned beef with natural juices began early in 1961 with the late President Kennedy's first executive order calling for more and better food for needy people. Immediately, USDA went into action to find some low-cost, new and better ways of packing more nutrition into foods for donation.

By law, price must be a factor in selecting and buying foods for donation. Under Section 32 of Public Law 320 — the purpose of which is to expand markets for agricultural products — foods bought for donation must be selling at farm prices less than 90 percent of parity. Thus, there is variation from time to time in the kind of foods that are legally available for purchase and donation by the Federal Government.

In readiness for a time when beef might reach 90 percent of parity or lower, Jim Constantine, C&MS specification specialist in the Livestock Division, undertook a search for the best way to process it for distribution to needy families. The product would have to be canned, since the food must be one that keeps well without refrigeration.

Earlier USDA purchases of canned beef and gravy had won wide acceptance from those who received it. Although canned beef with natural

juices had seldom been produced commercially, it gave promise of providing the most canned beef for the least labor cost. It is produced by placing only trimmed meat and salt in a can, then heat-processing the whole container. Memory of such a product prepared at home in earlier days told Constantine that it was delicious.

Officials of the Livestock Division agreed that the product was worth testing. So Constantine asked seven canners in different parts of the country to do experimental work on canning beef with natural juices. "Although most canners were at first skeptical about the suitability of this product, we got outstanding cooperation from them; in fact, most of them didn't even submit a bill for their work in developing test samples of the beef," recounts Constantine. Once they had solved an initial problem of scorching the beef, which is heat-processed without added liquid, practically all the samples sent into Washington were of top quality. Twenty-five different taste panel tests confirmed the results.

But that wasn't all. USDA did some laboratory work of its own to make certain that the product was, in fact, fully processed and capable of keeping well on the shelf. Scientists at the Department's Beltsville Research Center and those of the Meat Inspection Division cooperated in analyzing the product over and over to find any flaws and to determine how much salt is necessary for best preservation.

"The 1 percent salt they finally settled on can suit almost anyone's taste," says Jim Constantine. "Those who like lots of salt can add more to the canned

beef product; and those who are used to practically no salt find the canned beef product to their liking as is."

Before processing, the only items inside the can are 99 percent trimmed beef and 1 percent salt. According to specifications, the meat may have a maximum of 18 percent fat remaining, about 10 percent less than most ground meat sold at retail. After processing, the only liquid in the can is the natural beef juice from the meat.

Since an initial test purchase in 1961, USDA has bought 257 million pounds of canned beef in natural juices for donation to needy families, summer camps and schools lacking facilities for handling frozen beef, which the Department also buys for distribution. The contract which C&MS signs with a canner states that he must use only domestically produced meat which has been federally inspected for wholesomeness and that the beef must meet certain rigid grade standards for quality. The meat must be accepted at the canning plant by a USDA meat grader and must be canned under the constant supervision of a meat inspector to insure that it is correctly processed.

Small wonder that this canned beef product has earned wide acceptance by its consumers. Further testimony comes from people who hear about the canned beef and write to USDA asking where they can buy it for home use. For the present, at least, the answer is, nowhere in retail stores. But at least one canner is known to have already worked up a private institutional trade in canned beef with natural juices, similar to that packed for donation.

Mildred Brooks, left, of the District of Columbia Department of Welfare, is in her demonstration kitchen showing Versie E. Mercer and Gwendolyn L. Harris how to put together a tasty beef stew. The small can contains USDA-donated beef.



Protecting the Nation's Meat

Recently installed gas chromatographs are used in USDA labs to separate minute quantities of chemical compounds into their respective components. They are faster and more accurate.

By Robert H. Philbeck

FIVE GLEAMING new instruments —each with identical metallic exteriors, various dials and meters, and the inherent sophistication of space-age science — are now in use in five different chemical laboratories across the Nation.

While not as dramatic as the gigantic computers used in spacecraft development, these complex instruments are linked to a program every bit as important to the Nation — protecting the wholesomeness of our supply of meat.

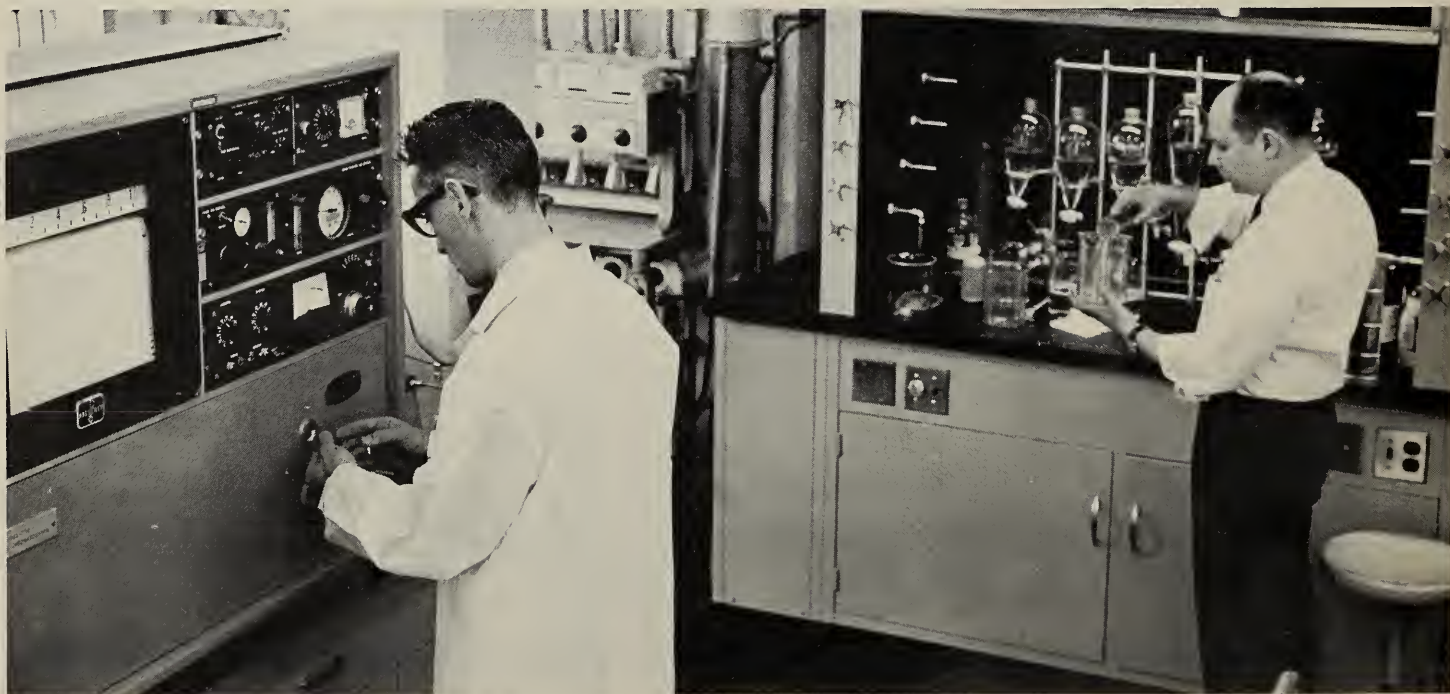
The instruments are gas chromatographs; the labs are those of the Meat Inspection Division of the U.S. Department of Agriculture's Consumer and Marketing Service.

The new instruments were recently installed in the Division's labs in New York, Washington, D.C., Chicago, Kansas City, and San Francisco. Another gas chromatograph has been in use for three years in its lab at Beltsville, Md., and additional ones are planned for its remaining laboratories in

Atlanta, Omaha, and St. Louis.

Basically, these gas chromatographs are used to separate minute quantities of chemical compounds into their respective components. Their addition greatly increases the speed and accuracy with which these laboratories help protect our meat supply.

Back in 1906, Congress enacted the Meat Inspection Act in response to public demand for reform in the meat packing industry. The Act requires Federal supervision of the cleanliness,



USDA chemists and lab technicians last year ran chemical analyses on more than 167,000 samples of meat products. The addition of the five new gas chromatographs to their laboratory equipment will result in faster, more accurate detection of adulteration in meats.

wholesomeness, and labeling of fresh and processed meat food products destined for sale in interstate commerce.

This service to the Nation is now administered by USDA's Consumer and Marketing Service. It is performed by highly skilled Federal inspectors working in meat packing and processing plants across the Nation.

Inspection begins with the live animal before slaughter, and continues through examination of all parts of the carcass. Supervision is maintained throughout each stage of curing, canning, or other processing. This includes sanitary inspection of the plant, extending to the product ingredients, processing equipment, and even to the paint used on the walls and the cord used for stringing cured meats.

The Federal inspection service also confirms accuracy of labels so that the words and pictures give an exact description of food contents in such products as wieners, sausages, and all other meat food products.

Just as the doctor in a hospital relies upon a medical laboratory for scientific diagnosis, so do these Federal inspectors rely upon the Division's laboratories for chemical analysis of meat products.

Inspectors take selected samples during the various stages of processing, which are sent to the laboratories for analysis. In addition, any product which the inspector suspects does not meet Federal standards is likewise sent to the labs.

Finally, samples are purchased in retail food stores and analyzed to insure that meat products reaching the consumer are representative of the in-plant samples.

Last year alone, the Division's nine laboratories tested more than 167,000 samples — an approximate average of 640 samples per working day — and the number is rising rapidly each year, due to increased variety and amounts of meat food products being produced.

Meat food products which are sampled most frequently are cured pork products such as smoked and canned hams, bologna and frankfurters, hamburger, fresh pork sausage, luncheon meats, canned vienna sausage, corned beef hash, lard and shortening, and meat loaf.

When a sample is received by the lab, it is carefully chopped and mixed. This is one of the most important parts of the process, since an improperly collected or prepared sample may throw off an entire test.

The analyst first conducts those tests



Highly skilled Federal inspectors perform on-the-spot inspection of our meat supply to insure its wholesomeness. They also rely heavily upon meat inspection laboratories for chemical analysis to verify the acceptability of meat products.

requested by the inspector. In the case of cured pork products, this generally includes testing for protein, phosphate and other substances to determine that the product is not adulterated.

Certain other tests are automatically made on some products.

For instance, sausage containing extenders such as nonfat dry milk, cereal or soy protein is analyzed to determine that the additive is within the 3½ percent allowed by regulations.

Lard and shortening are checked for foreign fat, and are analyzed for moisture content, antioxidants, and sometimes stability.

Other products are tested for meat content and quality. For instance, corned beef hash is analyzed to insure that it contains at least 35 percent cooked meat, and not more than 15 percent fat.

Throughout the testing process, speed and accuracy are essential. If the meat is found to be in violation, the inspector must know right away so he can approve or reject a questionable product. Further, he must have test results quickly to require changes in plant operations when any product fails to meet Federal specifications.

It is in this area — speed and accuracy — that the five new gas chromatographs will make their greatest

contribution.

Tests with the one already in use at the Division's Beltsville lab have shown that the time required for checking animal or vegetable fats for adulteration can be cut from three days to a day-and-a-half.

The instrument is also faster and more accurate in detecting objectionable residues of substances to which the live animal may have been exposed, such as pesticides and pharmaceuticals.

Though gas chromatographs are not new to science, chemists in the Meat Inspection laboratories are studying additional uses to which these instruments can be applied in protecting the Nation's meat supply.

Americans consumed an average of 174 pounds of red meat last year — and did so with complete confidence in its wholesomeness. This is due in no small part to the work of the chemists in the Meat Inspection laboratories.

And, this consumer protection provided by USDA's Consumer and Marketing Service also helps to insure hundreds of meat packers and thousands of livestock producers that there will be a market for their products.

(The author is Chief Chemical Evaluation and Control Staff Officer, Meat Inspection Division, C&MS.)

OFFICIAL BUSINESS

Promoting Plentiful Eggs

*World Champion Cardinals
join nationwide campaign to
focus attention on abundant
supplies of eggs this spring.*



"Red" Schoendienst, manager of the World Champion St. Louis Cardinals (l), and Stan Musial, Vice President of the Cardinals and Special Consultant to the President on Physical Fitness, join in promoting the consumption of record egg supplies. With them are egg and homemaker officials and Florida's Egg Princess (r).

THE WORLD champion baseball team, the St. Louis Cardinals, are among those who have joined the U.S. Department of Agriculture's Consumer and Marketing Service in calling consumers' attention to the abundant supplies of eggs this spring. All segments of the food industry, allied groups, and producers themselves have been active since January in merchandising eggs to stave off disastrously low prices. Eggs continue on USDA's Plentiful Foods List for May.

Members of that famous baseball team know the multiple nutritional value of eggs, and some have spoken up for this wholesome product. The Cards' star third baseman Ken Boyer, proud father of four children, says he buys eggs by the crate for his family. And the team's surgeon, Dr. I. C. Mid-

dleman, urges his players to eat plenty of eggs because of their high protein value.

USDA renewed its pledge of assistance to the industry at an early March meeting with leading representatives of poultrymen's organizations, opening the industry's traditional March Egg Month. Speaking at the meeting for producer groups, Lloyd H. Geil, general manager of the Poultry and Egg National Board, said the spring of the year has again been set aside for a major industry-supported merchandising and promotion campaign for eggs. He also said that his fellow poultrymen welcomed the continued cooperation of USDA in marketing the unusually heavy supplies of eggs on hand.

From that meeting, Secretary of Agriculture Orville L. Freeman tele-

graphed principal retail and food service organizations, urging them to "continue the help and assistance you have previously given, by intensifying your efforts during Egg Month." He also noted that the unusual soaring production of eggs, and the correspondingly lower prices to producers and consumers, began earlier than normal this year. And he pointed out that egg supplies were expected to continue heavy over a period of several months.

Spearheaded by the Consumer and Marketing Service's Food Trades Staff, USDA is working with the distributive and food service industries to expand the sale and use of eggs, and is supplying informational and educational materials to the food industry and to consumers, reaching the latter through radio, television and publications.